## REMARKS

The instant invention is directed to a process for the production of an acetylenically-unsaturated alcohol, preferably dehydrolinalool, which process comprises reacting, preferably at a temperature of from about 0-to-about 40°C, more preferably from about room temperature-to-about 35°C, and a pressure of from about 5-to-about 20 bar, depending on the temperature, in order to maintain the ammonia in a liquefied state, and preferably in a continuous manner, a carbonyl compound selected from methyl ethyl ketone, methylglyoxal dimethylacetal, 6-methyl-5-hepten-2-one, 6-methyl-5-octen-2-one, hexahydropseudoionone, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one and 6,10,14-trimethyl-2-pentadecanone, preferably 6-methyl-5-hepten-2-one, with acetylene, preferably in a molar ratio of acetylene-to-carbonyl compound of from about 2:1-to-about 6:1, in the presence of ammonia, preferably in a molar ratio of ammonia-to-carbonyl compound of from about 8:1-to-about 35:1, more preferably from about 10:1-to-about 30:1, and, in an aqueous solution, an alkali metal hydroxide, preferably potassium hydroxide, and preferably in a molar ratio of alkali metal hydroxide-to-carbonyl compound of less than 1:200, more preferably 1:500-to-1:200, most preferably 1:300-to-1:220.

Claims 1-31 are pending in the instant Application.

Reconsideration of this Application is respectfully requested.

Claims 1-31 have been rejected under 35USC103(a) as unpatentable over Tedeschi *et al* (US3,709,946).

United States Patent 3,709,946 (Tedeschi *et al*) describes a process for preparing hydroxy acetylenic compounds, particularly acetylenic alcohol, comprising batchwise or continuously reacting, ordinarily for 0.5-to-4 hours, in a reaction vessel, adapted to be operated under gage pressure, such as an autoclave suitably jacketed for temperature

control and provided with an agitator, preferably freed of air (such as by sweeping the reaction zone with an inert gas before the reactants and catalyst are introduced), under stirring at a temperature of -20-to-50°C, preferably at least 15°C, more preferably 20-45°C, and a pressure of 100-to-1000 psig, preferably at least about 400 psig, more preferably 440-to-680 psig, and in the presence of a co-catalyst system comprising a catalytic quantity, preferably 0.001-to-0.5 mole per mole of ketone of an alkali metal hydroxide, preferably 90% or higher purity, preferably containing less than 5% water and preferably finely-divided (80-100 mesh or higher), preferably potassium hydroxide or sodium hydroxide, and about 0.1-to-2 moles per mole of ketone of liquid ammonia, preferably at least about 0.4 moles, the first reactant comprising a ketone, preferably of the formula $R_1$-C(=O)-$R_2$, wherein $R_1$ and $R_2$, independently, are selected from the group consisting of hydrogen, $C_1$-to-$C_{20}$-alkyl, preferably $C_1$-$C_7$-alkyl, radicals and $C_3$-to-$C_{10}$-cycloalkyl groups, $C_6$-to-$C_{12}$-aryl groups, and the monohydroxy and lower alkoxy derivatives of such compounds, or wherein $R_1$ and $R_2$ together constitute a $C_6$-to-$C_{12}$-cycloalkyl radical, preferably where at least one of $R_1$ and $R_2$ is not aryl, and the sum of $R_1$ and $R_2$ should be at most 12 carbon atoms, with, as the second reactant, liquefied acetylene in a molar ratio of acetylene-to-ketone of at least 2:1 up to about 4:1. After the reaction is completed and excess acetylene and liquid ammonia has been vented and removed, the reaction mixture is hydrolyzed in the presence of an inert organic solvent, preferably a lower alkyl ether of the formula $R_3$-O-$R_4$, wherein $R_3$ and $R_4$, independently, are $C_1$-$C_6$-alkyl radicals, such as diethyl ether, methyl ethyl ether, diisopropyl ether and the like, by adding water and treating the layer or layers containing the acetylenic alcohol by carbonation with carbon dioxide, by acidification with a dilute mineral acid, such as dilute sulfuric acid or hydrochloric acid, by means of ion exchange resins, acid salts or any of the other techniques known in the art, or treating the reaction mixture directly with carbon dioxide after removal of the ammonia without the previous addition of water. The acetylenic alcohol is then recovered by, e.g., extraction, or filtration and distillation.

Applicants respectfully challenge several of the conclusory contentions or assertions of

the Examiner in applying the rejection in her Actions.

In responding to Applicants' demonstrations of unexpected results in their Application and in Dr. Bonrath's Declaration of October 1, 2007, wherein they showed comparable yields of desired product (e.g., a 2.1% difference between a 95.9% conversion using Applicants' akenylation process conditions versus a 98% conversion using the process of the Tedeschi *et al* Patent), but a significantly lower formation of undesired diol by-products, the Examiner has dismissed the 52-to-76% reduction of such unwanted by-products as "correlat[ing] with ...changes [in product yield]", and has suggested that they "would be difficult to measure accurately for the product". Dr. Bonrath's second Declaration, submitted herewith forcefully refutes both of the Examiner's assertions, showing the very significant and unexpected benefits, in both the reductions of purification and environmental costs associated with the use of the substantial reduction in the molar ratio of alkali metal hydroxide-to-ketone in the process, and that such beneficial changes can be measured and, as discussed, can have a substantial effect.

In responding to Applicant's demonstration of the "criticality" of the ratio of alkali metal hydroxide-to-starting carbonyl in their process when compared to the suggested generic range of 1:1000-to-1:2, but exemplified teaching (1:11.9, 1:6 and 1:6 in Examples 1, 2 and 3, respectively), of the Tedeschi *et al* Patent, and of the prior art teaching of "large amounts of potassium hydroxide" as catalyst for the production of acetylenic alcohol, as discussed in the Tedeschi *et al* Patent at column 1, lines 33-49. The difference between the ratio of alkali metal hydroxide-to-carbonyl of less than 1:200 and the much higher ratios taught in the Tedeschi *et al* Patent cannot be bridged or explained as an "optimization" of process conditions from a very large starting range of 1:1000 to 1:2 when the reference directly teaches values in the high end of the range. There is simply no suggestion or motivation for using such a much lower ratio, and the unexpected benefits in similar yield, but much lower unwanted by-product formation that resulted from using the lower ratio, were clearly not foreseen.

In responding to Applicants' distinction from their use of aqueous alkali metal hydroxide in their process, the Examiner has asserted that "when the powdered potassium hydroxide [employed as one of the co-catalysts in the Tedeschi *et al* process] is in solution...it becomes aqueous", but has provided no evidence of that, as no water is shown in the reactants, and the less than 5% water teaches away from aqueous solutions when the potassium hydroxide is describes as "powder".

In the production of intermediates for the large markets, *inter alia*, of vitamins and cartenoids served by the process of the instant invention, the unobvious use of a significantly lower ratio of alkali metal hydroxide-to-stating carbonyl compound than specifically taught, or even reasonably suggested (as the much higher ratios shown really teach away from using significantly lower ratios), in the Tedeschi *et al* reference and the use of aqueous alkali metal hydroxide, as compared with the powdered alkali metal hydroxide taught in the same reference, clearly make the process of the instant invention unobvious.

Reconsideration and withdrawal of this rejection is respectfully requested.

**SUMMARY**

The rejection having been addressed and overcome, and the pending Claims believed to be in condition for allowance, Applicants earnestly solicit issuance of a Notice of Allowance. If any remaining matters need to be resolved, Applicants respectfully request an interview with the Examiner prior to any adverse action being issued by the Office, or the need for an RCE, in response to these arguments in order to facilitate allowance of the pending Claims from the present Application. The undersigned attorney may be contacted at the telephone number set forth below.

Respectfully submitted,

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